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# The Speculum Matricis

BY

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SPECULUM

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# The Journal of Obstetrics and Gynæcology of the British Empire

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## The Speculum Matricis.

By ALBAN DORAN, F.R.C.S.

THE Loan Collection, the property of the Royal Society of Medicine, deposited in the Museum of the College of Surgeons, possesses a sixteenth century "Speculum Matricis," in design one of the most ancient of all surgical instruments. A dilator or speculum of the same type was found amidst the ruins of Pompeii and is preserved in Naples, and a similar three-bladed instrument was certainly in use in mediæval Europe, for it was well-known as a rectal or vaginal dilator to at least one surgeon, Gersdorff, who was in practice at the end of the fifteenth century. It underwent numerous changes in detail, and one later development is the well-known Weiss' three-bladed dilator. All varieties, from the beginning, bore three or four blades expanding from a common point by means of a screw action.

For placing at my disposal the instruments and works described and considered in this article my thanks are due to Professor Arthur Keith, Conservator to the Museum, and Mr. Victor Plarr, Librarian, Royal College of Surgeons, and to the Curator of the Wellcome Historical Medical Museum, Mr. C. J. S. Thompson.

This speculum matricis (Fig. 1) is thus described in the "Catalogue and Report of Obstetrical and other Instruments exhibited at the Conversazione of the Obstetrical Society of London, held, by permission, at the Royal College of Physicians, March 28th, 1866, p. 195:—

"A very curious variety of the tri-valve speculum, exhibited by Professor Breslau of Zurich. It is one of the terrible but historically curious specimens described and illustrated in the now rare work of F. (*sic*) Rueff: 'Ein schön lustig Trostbüchle von den empfengknussen und geburten der menschen vnnd jren vilfältigen zufälen und verhindernussen,'[1] Zurich 1554. Rueff lived in Zurich in the middle of the sixteenth century, and his book, translated into several languages, was one of the first concerning the obstetrical art.

1. I have corrected several misprints in the long name of Rueff's work, as it appeared in the Obstetrical Society's "Catalogue."

"The blades of this instrument are pointed, three inches long, and spring at right angles from the handle, which is heart-shaped and has a long screw running through its centre; this screw, attached to the blades, is turned by another handle similar in construction and movement to those used in the common street organs. Dr. Breslau writes to us as follows:—

"'Eight years ago[1] I bought this iron instrument from an antiquary who had received it as a legacy from a physician, and I believe, judging from its form and construction, that it is an original one. I should be most happy if the Obstetrical Society of London would not only take an interest in this specimen of mediæval obstetric cruelty, but more if they deem it worthy of a place in their collection.' The instrument is accordingly in our museum."

The speculum is not figured, and nothing further is said about it. The next paragraph in the "Catalogue" informs us that "Dr. Mathews Duncan exhibited also a very ancient speculum, in all respects like the above, with the exception of the blades being rounded at their extremities and $4\frac{1}{2}$ inches in length." It was not presented to the Obstetrical Society, whilst Dr. Breslau's speculum has passed with the other instruments once in the Society's museum into the possession of the Royal Society of Medicine, and is therefore included in the Loan Collection.

This Loan Collection speculum matricis must be described with a little more precision. For the correct nomenclature of technical details concerning the different varieties of specula described in this article I am indebted to Mr. Barry Hopkins of Messrs. Arnold and Sons, and to Mr. Finerty, of the Museum of the College.

The speculum weighs fourteen ounces, or nearly four hundred grammes, and is made of steel, apparently hand-forged and finished. It measures $7\frac{1}{2}$ inches (19 cm.) in length. It bears three blades, each $3\frac{1}{4}$in. (8·2 cm.) long, convex on its outer surface, and tapering to a somewhat sharp point. The inner surfaces are prism-shaped, so that all three blades may be brought into perfect apposition when closed, and made firm, fit in fact for introduction into the vagina. Each of the two lateral blades stands at right angles to a flat side-bar with which it is continuous. Each bar curves outwards and then downwards, making a wide curve, to join its fellow below, where they are united by a single or pin joint. The two form a shoulder about $3\frac{1}{2}$ inches (8·9 cm.) broad when the blades are closed, and give a pear-shaped outline to the instrument. The third, middle, or lower blade is continued into a flat cross-shaped piece of steel to which it stands at right angles. The cross-bar forms a pair of wings looped so as to travel over the outside curved bars. To the vertical bar of the cross, two bearings are affixed, the upper to

1. *I.e.*, in 1858.

receive the revolving head of the screw, the lower to carry the female screw. A third bearing, resembling the second, is fixed on the joint uniting the outside bars below. A male screw passes through these several bearings and is worked by a winch, the shaft of which is $1\frac{3}{4}$ inches (4·4 cm.) and the handle $2\frac{3}{4}$ inches (7 cm.) long, so that the blades may be opened or closed as desired.

The evidence that this sample in the Loan Collection is of great age and not a modern model is strong. It is hand forged, and another apparent proof of its antiquity is the polish of its surface, especially in the inner border of the lateral bars, which indicates that the smoothing of the metal was done by rough stone and not by the more modern file.

## The Speculum Matricis known to the Ancients.

This kind of speculum is generally known as Rueff's. That name is applied to it in Witkowski's "Arsenal Obstétrical,"[1] fig. 27, p. 14, but an instrument, also figured in the "Arsenal," fig. 21, p. 13, practically identical in its mechanism, was in use among the Romans.

### *The Pompeian Specula.*

Both the Museum of the College of Surgeons and the Wellcome Museum contain facsimile reproductions from the original vaginal dilators (*Dioptera*) found at Pompeii and now in the National Museum, Naples. They are the earliest specula so far discovered and belong to the first century of our era, at the latest, as Pompeii was destroyed A.D. 79. As stated on the cards placed under the facsimiles in the Wellcome Museum, the prototype of the bladed speculum was probably the obstetrician's hand with fingers first placed together in the shape of a cone for introduction, and then spread outwards for exploration. Hippocrates, as we are informed on the cards, makes no special mention of the vaginal dilator, but speaks of two different kinds of rectal dilators similar in construction to the bladed instruments used for the vagina, and numerous passages in his writings refer to lesions of the cervix uteri which necessarily imply the use of the instrument. Likewise, at a considerably later date, when we have evidence of its general use, we find no mention whatever of the vaginal speculum in many of the leading medical writers of the period, such as Celsus, Galen and Oribasius.

Leonidas of Alexandria (A.D. 200), we are further informed, states, according to a quotation by Paul of Ægina, that the anus

1. Kilian, on whose "Armamentarium Lucinae Novum" the "Arsenal" was founded, gives no drawings of Rueff's and the Pompeian specula, either in his "Armamentarium" (1856) or in his earlier "Geburtshülflicher Atlas" (1835). Yet it will be seen that Kilian knew of Rueff's "forceps" and "rostrum anatis."

must be dilated like the vagina of women by means of the anal dilator, that is to say by means of the small diopteron.

Thus, as these instructive notes remind us, the use of a bladed expansible instrument alike for the anus and vagina is recorded in the works of ancient authorities. When we turn to the middle ages, we find that Guy de Chauliac in his "Grande Chirurgie" of 1363, in writing of the extraction of the child, directs the surgeon to "introduce the instrument called *Speculum* which is provided with a thumbscrew, and dilate the vagina as much as possible." No doubt de Chauliac is speaking of the same instrument, the thumbscrew, instead of the winch, being a mere modification, known, as will be explained, to Paré. It will be shown that Gersdorff published a drawing of this speculum matricis in 1526, twenty-eight years before Rueff's work appeared, and notes distinctly that it was used as an anal or vaginal dilator.

The Museum of the College of Surgeons possesses, as has already been observed, a set of facsimiles of instruments found in Pompeii, from the originals now preserved in the Naples Museum, presented by the curators of the latter collection in 1886. There is a dilator not unlike certain nineteenth century instruments bearing that name and a four-bladed as well as a three-bladed speculum matricis.

The four-bladed speculum differs entirely from Rueff's in mechanism. The blades work on a frame by the mechanism seen in an artist's easel. It probably held open thé vulva after the fashion of Albucasis' speculum, represented as the "Figura cochleæ qua aperitur os uteri" in Channing's "Albucasis de Chirurgia, Arabicæ et Latine," Clarendon Press, Oxford, 1778, pp. 338-9. This speculum is also figured, but hardly identical in details, as "Forma vertiginis qua aperitur matrix" in "Cyrurgia parva Guidonis," published in Venice in 1500. It is not quite clear, however, that the Roman four-bladed speculum was identical in mechanism with that figured by Albucasis and referred to by later writers.[1]

There can be no doubt, on the other hand, that the three-bladed Pompeian speculum is the ancestor of Rueff's. The blades are more convex externally and become somewhat narrower towards the lower and more cylindrical portion. The upper, free ends, or points of the blades are very blunt, a great deal blunter than the blades in the Loan Collection sample and in the instruments figured by Gersdorff and Rueff. Thus the ancient Romans finished off the blades better than the Europeans of the Renaissance; as may be seen at a glance (Fig. 2) the blades in the Pompeian speculum would be much less likely to wound or irritate the parts. In one

1. For information about Abu'l Kasem Alzaharavi, commonly called Albucasis (died about 1122), and his numerous literary descendants, see Siebold, "Geschichte der Geburtshülfe," vol. i, p. 287. There seems to be no evidence that he used the Pompeian-Rueff type of speculum.

important feature the Pompeian speculum resembles fig. 1, the Loan Collection instrument, for in both the blades are prismatic, whilst in Gersdorff's and Rueff's they are concave internally. It would have been better had the points been made as blunt in the sample to be seen in the College Museum as in the Roman prototype, but the return to the prismatic type of blade was a good idea.

The two lateral blades in the Pompeian speculum (Fig. 2) stand at right angles to a flat side bar with which they are continuous. The two bars running outwards, slightly curved with the convexity forwards, form a shoulder $2\frac{1}{2}$ inches or 6·3 cm. broad when the blades are closed. Below the shoulder they turn very sharply downwards, running for over four inches, bowed inwards, so as to be within half an inch from each other in the middle of their course. At their extremities they turn inwards and are united to each other by a round hinge-joint about $\frac{1}{2}$ inch (1·2 cm.) in diameter. A rod passes through the hinge and is secured by a linchpin on the upper surface. This rod has a very broad conical head, projecting from the under surface and bearing a female screw.

The middle blade stands at right angles to a stout cross-bar $2\frac{1}{2}$ inches (6·3 cm.) long, with which it is continuous. The cross-bar bears a slot in each side so that it may travel over the side bars. There is a bearing on the under side of this cross-bar, for a female screw.

The male screw is worked by a simple cross-bar handle $1\frac{1}{2}$ inches (3·8 cm.) wide. It passes through the head of the rod at the hinge and through the bearing on the cross-bar, above which it ends secured by a metal cap.

Thus the male screw lies on the under surface of the speculum in the Pompeian instrument, but on the upper surface in the Loan Collection and many other Renaissance specula, though in a few sixteenth century instruments the screw runs below as in the Roman prototype. There remains, however, a special feature in the Pompeian speculum. Two flat bars, $3\frac{1}{2}$ inches (8·9 cm.) long, and convex externally, are prolonged below the side bars, each attached to the corresponding side bar by a hinge-joint. Thus they can be pushed outwards, out of the way when the screw is being turned and then pressed inwards so as to meet close above the handle of the screw; this arrangement allows the speculum to be firmly grasped.

### Gersdorff and the Speculum Matricis.

Rueff does not claim to be the inventor of the speculum matricis which he figures and which has been associated with his name ever since 1554. We find a drawing (Fig. 3) of a very similar though not identical instrument in the edition of the "Feldtbüch der Wundartzney," published 1526. The author describes himself in his preface as Meister Hansvon Gersdorff, genant Schylhans, burger

und wundartzet zü Strassburg." It was printed "durch Joannem Schott zü Strassburg im Thyergartenn, Anno Christi MDxxvi." Gersdorff served as a surgeon in the field during Charles the Bold of Burgundy's wars in 1476-7. The first edition of the "Feldtbuch" was printed by Schott of Strassburg in 1517, the last was published in Frankfort in 1551.[1] It is a remarkable treatise written in German, and printed (Latin and Greek as well as German words) in a fine Gothic or black-letter type. The title-page bears a spirited woodcut (Fig. 5) representing an army-surgeon and his assistant dressing the head of a wounded warrior. In the background soldiers are seen storming a castle. The woodcut is plain, excepting the coats of the soldiers and of the surgeon's mate, the flames from the castle, the sky behind the doomed edifice and the blood from the patient, all painted deep red, the colour being still unfaded in the copy of the "Feldtbüch" in the library of the College of Surgeons. We need not dwell any longer on the general characters of this fascinating volume. If we turn to page 57 we find the familiar speculum matricis represented in a woodcut which we reproduce (Fig. 3). The drawing is larger than Rueff's but the two represent almost identical instruments, both differing in the same points of detail from the speculum in the Loan Collection. Gersdorff places on the left of his woodcut the words "Speculum, ds ist den affter oder geburt glyder vn frawen zü öffnen" (Speculum, that is—to open the anus, or the birth parts of women). The woodcut follows Chapter XVII, "Von dem flussz Emorroidaruz (*sic*) ds ist der Fygenblotteren im affteren" (On the hæmorrhoidal flux, that is, piles in the anus). The instrument, in fact, is represented by Gersdorff as a rectal speculum, though the author notes that it could be employed in obstetrics, a subject which is not included in the "Feldtbüch."

In only one detail does Gersdorff's speculum differ from Rueff's, and that will presently be explained. I mention it here because it shows that Rueff's drawing was not taken from the same sample as Gersdorff's.

Thus Gersdorff refers to the speculum as a surgical instrument, merely mentioning, under the title to his drawing, that it was also used in obstetrics. E. C. J. von Siebold in his excellent "Versuch einer Geschichte der Geburtshülfe" (1839), omits all mention of Gersdorff, who was not an authority on obstetrics, though he devotes many paragraphs to Eucharius Rösslin and Rueff.

### Rueff and the Speculum Matricis: Rösslin, Raynald and Rueff.

The library of the College of Surgeons possesses a copy of the original edition of Rueff's work. It is entitled:—

1. Gurlt and Hirsch, "Biographisches Lexicon."

De Conceptu et Generatione Hominis, et iis qvae circa hec potissimum consyderantur, Libri sex, congesti opera Jacobi Rveff. Chirurgi Tigurini, Insertae quoq; sunt picturae uariae fœtus primum in utero siti, deinde in partu, mox etiam matricis et instrumentorum ad partum promouendum et extrahendum pertinentium, nec non postremo uariorum monstrorum insuper.

CHRISTOPHORUS FROSCHOVERUS excvdehat Figuri. Anno MDLIIII.

(Fig. 6).

Siebold (*loc. cit.*) publishes the names of Rueff's work, a formidable undertaking, not so much because there were many editions but rather on account of the long titles, which the author changed more than once.

The Latin and vernacular first editions both appeared in 1554, published by Froschouer in Zurich, the German title is given above in the "Catalogue" description of the instrument in the Loan Collection. In 1559 a second German edition appeared, with the same title and publisher, but in 1580 Feyerabendt of Frankfort published a third German edition entitled "Hebammenbuch, daraus man alle Heimlichkeit dess weiblichen Geschlechts erlehrnen," etc., etc. A second Latin edition was published at Frankfort in 1580 with a very long title [1] which Siebold omits, and a third issue with the same name in 1587; these two issues were, according to the title-page, "Opera clarissimi Jac Rueffi, chirurgi Tigurini quondam congesti." A Dutch edition, it appears, was published in Amsterdam in 1670.

Rueff (1500—1558), whose name is spelt in five different ways, was a poet and a playwright, he was also a surgeon, and it seems certain that he superintended midwives in Zurich. Von Siebold considers that Rueff's "De Conceptu" was little more than a new edition of Eucharius Rösslin's "Der Zwangern frawen und hebammen rosengarten," with emendations based on the author's personal experience. [2] This statement is of special interest in respect to the speculum matricis. I have looked through the facsimile copy of Rösslin's "Rosengarten" (1513), presented to the library of the College of Surgeons by Sir Frank Crisp, and I find that it includes no drawing or description of the speculum. Hence it is not surprising that it is ignored in the "Byrth of Mankynde" which,

1. The reader will find a copy of this edition in the library of the College of Surgeons. The title page bears a fine woodcut representing the lying-in chamber.

2. Das Buch des Reuff wird am besten als eine neue Ausgabe des Euch. Rösslin angesehen, wobei sich der Verfasser bemüth hat dasselbe nach seinen besten Kräften zu verbessern," Siebold's "Geschichte," vol. ii, p. 24.

as Dr. J. W. Ballantyne has shown us, is in great part a translation of Rösslin's book.[1]

On the other hand, we have seen that the speculum matricis is figured in Rueff's "De Conceptu." It is also described in that work, in a chapter conspicuously modified from a similar chapter in Rösslin's treatise.

For in Rösslin's "Der Swangern frawen und hebammen Rosegarten" (1513), the chapter "Wie man das todt kindt von müterleib bringen soll" (p. 67), begins very similarly to the chapter "Quomodo et quibus instrumentis impediti et mortui infantes producendi," in Rueff's "De Conceptu" (1554). Rösslin, however, after directing how certain very unheroic measures must be tried, teaches (p. 70) that on their failure, "Und ob solich artzney und stuck alle wie die in einer ordenung nach einander obgemelt seinclt dz tod kind nit usstreiben möchten, so müss man ernstlich in die sach sehen vnd das tod kind von der müter bringen mit hocken, ysingzwangen vnd andern gezeügen darzü gemacht vnd soll man im also thün."

The above passage is thus translated in Raynald's "The Byrth of mankynd," folio 107, as I found when consulting a copy of the 1552 edition in the library of the Royal Society of Medicine.

"But yf al these medicines profet not, then must be vsed more seuere and hard remedyes, with instrumētes, as hoke, tōges and soch other thīges made for the nonce."[2]

Rueff after "Caeterum post omnia haec adhibita" ("De Conceptu," p. 29) teaches quite a different line of practice.

I need not reproduce the passages on the use of this speculum matricis in Rueff's original Latin, as it is literally translated in "The Expert Midwife or An Excellent and most necessary Treatise of the generation and birth of Man . . . Compiled in Latine by the industry of *James Rueff;* a learned and expert Chirurgion: and now translated into English for the general good and benefit of this Nation. London. Printed by E. G. for S. B., and are to be sold by *Thomas Alchorn* at the signe of the Greene Dragon in Saint Paul's Church-yard. 1637." (Fig. 7.)

The speculum is to be used when "children sticking in the

1. See Ballantyne, "The Byrth of Mankynde," *Journal of Obstetrics,* etc., vol. x, p. 297, and vol. xii, p. 225. The first edition was issued in 1540, the last in 1676, hence it was contemporary for a long time with Rueff's "De Conceptu" (1st edn., 1554, last, in Dutch, 1670), and the English translation, "The Expert Midwife." A *revised* list of the editions of "The Byrth of Mankynde" will be found *loc. cit.* vol. xii, p. 324.

2. Dr. Ballantyne quotes this passage (*loc. cit.* vol. xii, p. 265) from another edition (1560). The orthography is not identical. In the title the last word s "Mankynd" in 1552 and "Mankynde" in 1560. See the photographs of the title pages, *loc. cit.* vol. x, p. 312 and 314.

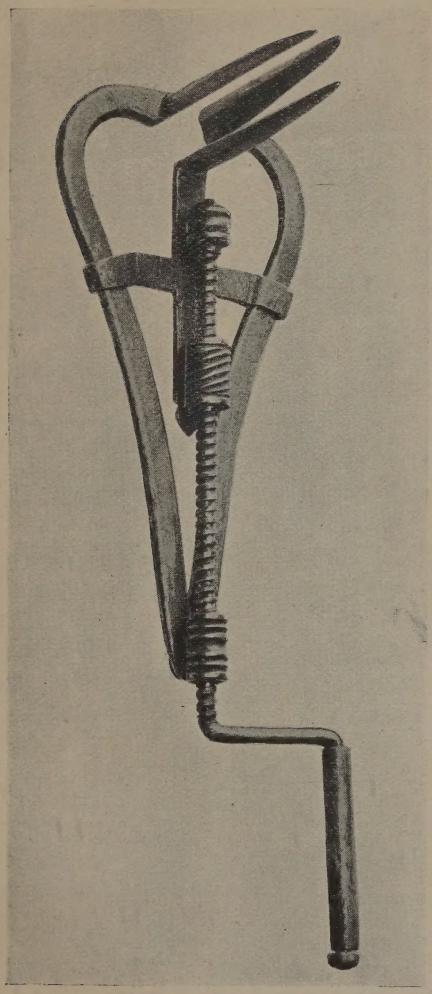

Fig. 1.

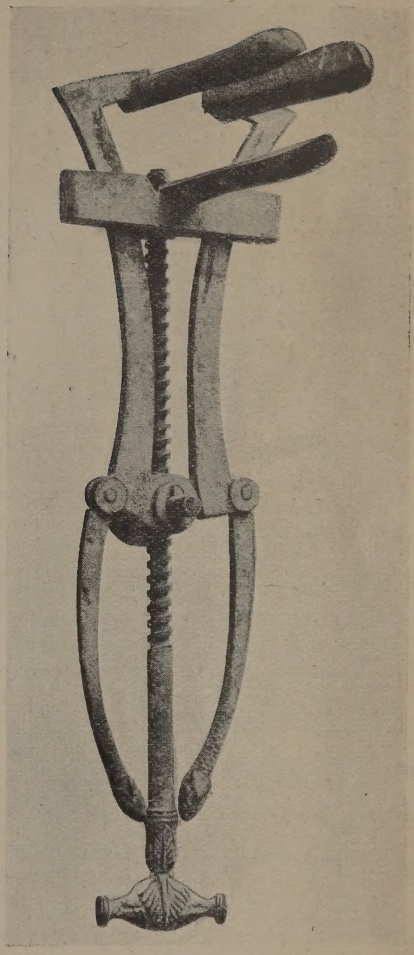

Fig. 2.

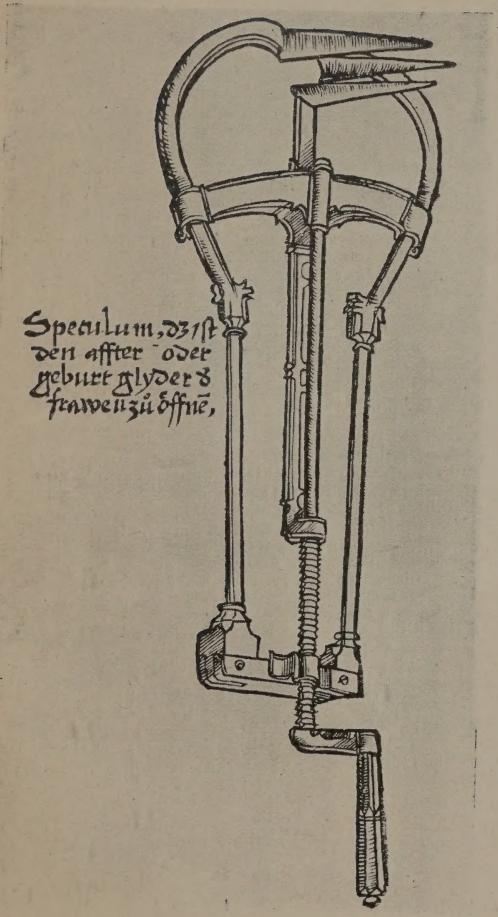
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Fig. 3.

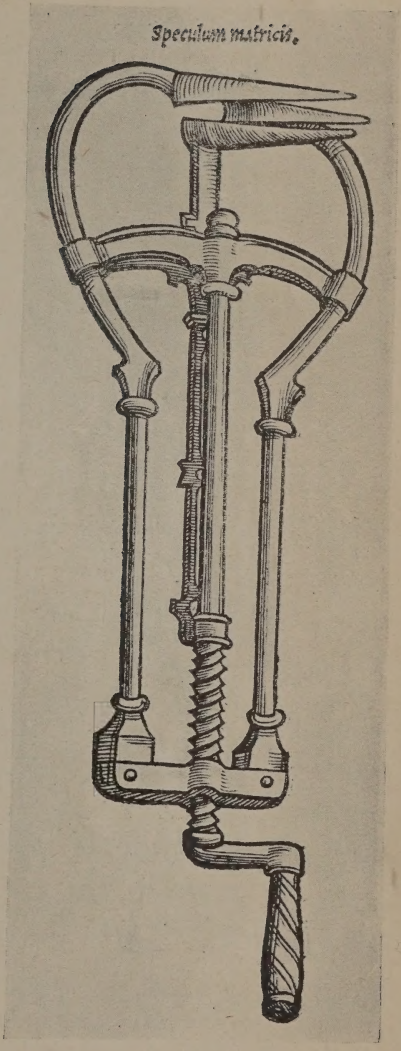
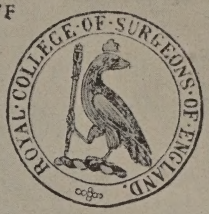

Speculum matricis.

Fig. 4.

Fig. 5.

# DE CONCEPTV
## ET GENERATIONE HO=
MINIS, ET IIS QVAE CIRCA
hęc potíſſimum conſyderantur, Libri ſex,
congeſti opera IACOBI RVEFF
Chirurgi Tigurini.




INSERTAE *quoq; ſunt picturæ uariæ fœtus, primum in utero ſiti, deinde in partu, mox etiam matricis & inſtrumentorum ad partum promouendum & extrahendum pertinentium, nec non poſtremo uariorum monſtrorum inſuper.*

CHRISTOPHORVS FROSCHO=
VERVS EXCVDEBAT TIGVRI
ANNO M. D. LIIII.

Fig. 6.

# THE EXPERT MIDWIFE,

OR

An Excellent and most necessary Treatise of the generation and birth of Man.

Wherein is contained many very notable and necessary particulars requisite to be knowne and practised:
With divers apt and usefull figures appropriated to this worke.

Also the causes, signes, and various cures, of the most principall maladies and infirmities incident to women.

Six Bookes

Compiled in Latine by the industry of *Iames Rueff*, a learned and expert Chirurgion: and now translated into English for the generall good and benefit of this Nation.

---

LONDON.
Printed by *E. G.* for *S. B.* and are to be sold by *Thomas Alchorn* at the sign of the Greene Dragon in Saint Pauls Church-yard. 1637.

Fig. 7.

wombe and being dead, are to be brought forth." First potions, suffumigations, plasters and a medicated pessary are to be tried (pp. 98—103).

"But after all these things being used, but especially, if the Midwife shall not be able to make way and passage for the Infant, the parts of the Matrix being enlarged and amplified as they should, Instruments wholly fit and profitable for those uses shall be used. And when as necessity shall require the use of them, the poore and distressed labouring-woman must be encouraged before hand with comfortable and cheerefull words, then the Instruments are to be prepared, and devout prayer to be poured forth to God: and that done, let her so sit upon the Stoole, that shee may turn her Fundament as much as shee can to the backe of the Stoole, and draw her legges to her as shee may, and spread and separate them as wide as shee can, the other women standing by, helping and furthering her, that the Midwife may conveniently performe and execute that which is to be done with the Instruments. But if another way shall please, and seeme more commodious to the Midwife, let her bring the woman to her bed, in which let her lie, her head declining and bending backeward a little, but her buttockes lifted somewhat higher than all the rest, and her legges drawne unto her so much as may be. Then with either of these Instruments, which shall please best, being annointed, let the Midwife begin to worke, and to proceed forward. For both these hereafter described and set forth are prepared to open, enlarge, and bring forth.

"Let the Midwife gently direct and convey one of these Instruments, that is, the Instrument named in Latine, *Apertorium,* the opening Instrument, being annointed and closed together by the necke of the Matrix into[1] the inward port or gate, which being sufficiently done, let her close together the Instrument with both her hands at the lower end of it, untill she have enlarged the mouth of the Matrix as much as sufficeth.[2] Or, if it please, let her use the other Instrument, named in Latine, *Speculum Matricis,* the Looking-glasse of the Matrix, after the same manner as was said even now of the other Instrument called *Apertorium.* But in this Instrument named *Speculum Matricis,* the turning joynt must be turned so often about, till you shall understand it sufficeth for dilatation and enlarging of those parts. And the Orifice or entrance of the Matrix being enlarged by that meanes, let the Midwife take hold of the Infant gently with her hands, and if it be possible, bring him forth with the Secundines. After let her wash and annoint the womb of the delivered woman, and let her bring

1. Inaccurate, as will be explained.

2. The apertorium was a large dilator cross-bladed. The blades are convex externally, and two hinged bars, crossing each other X-wise, connect their inner surfaces, acting like the spring in more modern dilators.

her to her bed, being delivered of the birth, and refresh and comfort her with sweet spices, and also with convenient meat and drinke." All dead children, retained membranes and placental tissue, and moles require "the same maner of proceeding." Should the midwife fail, then the dead fœtus must be removed with the "*Rostrum anatis,* the Ducke or Drakes-bil," or "the Paire of Pinsers with which teeth are pulled out," or else "the *Forceps longa et tersa,*[1] the long and smooth Pinsers or Tongs." The last observations and the drawings of the *Rostrum anatis* and the *forceps longa et tersa* are, like the remainder, reproduced literally from Rueff's Latin edition in the English translation which was written in 1637, when Chamberlen's "saving" forceps was probably in use.

The blocks in the English translation are reversed and badly printed.

The above passages have been quoted in full to show that Rueff completely amended Rösslin's chapter on the extraction of the retained dead fœtus, from the middle part beginning "Ob solch artzney" and "Caeterum post omnia haec adhibita." It seems strange that Rösslin does not mention the speculum matricis, which was known in 1515, when his "Rosegarten" was published.

### The Speculum Matricis not a Dilator of the Cervix.

There can be no doubt that this instrument was not meant to be a dilator of the cervix, but an expander of the vagina, a "speculum" in fact as that word is now understood.[2] One passage in the translation, quoted in full above, runs: "Let the midwife gently direct and convey one of these Instruments, that is, the Instrument named in Latine, *Apertorium,* the opening Instrument, being annointed and closed together by the *necke of the matrix*[3] INTO *the inward port* or *gate.*" In the original the sentence reads "Alterum ex instrumentis illis, apertorium inquam, unctum et compressum obstetrix leniter per *collum matricis* AD *portam interiorem* dirigat" (*loc. cit.*, p. 30). The English sentence is clumsily

1. Muller, in his "Historia Forcipum et Vectium," 1794, honours this instrument by placing it first (Plate i, fig. 1, "Forceps Rueffi") in his long series of drawings of obstetric forceps. Kilian, in his "Geburtshülflicher Atlas," figures Rueff's forceps and his rostrum anatis, but they are omitted in that authority's "Armamentarium." Neither the "Atlas" nor the "Armamentarium," as has been already stated, contains drawings of Rueff's speculum.

2. "Understood," I mean, as an instrument to be introduced into the vagina, and no higher. We are in no way concerned, when considering the "speculum matricis" with the vaginal speculum as an instrument for the inspection of the cervix at the os for any purpose gynæcological as well as obstetrical.

3. The italics and small capitals in these quotations from the English and Latin text are our own.

composed, it reads as though it meant that the midwife should pass the *Apertorium* along the vagina INTO the os uteri, but in Rueff it reads "AD portam." The speculum is to be used in the same way, "Speculum inquam matricis, *eodem modo* utatur, uti de apertorio modo dictum est." *Ad portam* evidently meant "to," or "as far as," the os externum, not "into" the uterine cavity. Even as late as 1836, David Davis in the Atlas to his "Principles and Practice of Obstetric Medicine" describes a vaginal speculum of the Weiss' urethral dilator type (Pt. XI.B, fig. 3) as "a good representation of a speculum matricis. It is the instrument most frequently used at present in London practice. The part to be introduced, embraces a staff finished at one end by a rounded termination, by which it is easily conducted along in contact with the os tincae." Thus D. Davis's speculum *matricis* only reached the os tincae, it was not designed to be passed up the cervical canal and to dilate that part of the genital tract so that the uterine cavity could be exposed to the eye. Fig. 1 in the following plate, XI.C, "exhibits the model of a speculum matricis, which has been often very conveniently used by the author, to examine both the orifice of the uterus, and portions of the internal surface of the vagina." This instrument is an ordinary tubular speculum, predecessor of the glass instrument introduced by Dr. Ferguson in the nineteenth century.

Thus we must remember that "collum matricis" or "neck of the womb," in old books on midwifery meant the vagina, not the cervix, and we must never look on the tri-valve speculum matricis as an early form of Bossi's uterine dilator, a purely obstetrical instrument, nor as a homologue of the gynæcological uterine specula of Barnes and Brissez.

## The Sixteenth Century Speculum Matricis: Variations in Pattern.

The distinction between this speculum matricis of the Loan Collection and those figured in Gersdorff and Rueff's works is not very essential. In Gersdorff and Rueff's (Figs. 3 and 4) the side bars are in their lower half straight and parallel. They are not united below by a single or pin-joint, but are connected by a horizontal bar. In Gersdorff's speculum there is a bearing on this bar for the passage of a female screw, after the mechanism in the Loan Collection specimen. In Rueff's there is no such bearing, the female screw running through the horizontal bar itself, broadened along the line of transit. In the Gersdorff-Rueff type the male screw is fixed to a T-shaped mount with collars on the horizontal bars through which the side bars slide. In the Loan Collection sample the collars or loops belong to the cross-bar, as already described. In both Gersdorff's and Rueff's specula the blades are concave internally, not prismatic.

Witkowski ("Arsenal Obstétrical," fig. 33, p. 15) represents an instrument somewhat like that in the Loan Collection, describing it as a three-bladed dilator used in Mauriceau's days. We must note that it is a *dilatoire,* whilst Witkowski calls Rueff's instrument a *Spéculum.* It has, however, concave blades, and although the side bars come very close together below, they are united by a short horizontal bar, perforated by a female screw, as in Rueff's speculum. The male screw runs into the collar through which the lateral bars slide, working the collar direct, and joins the middle blade. Witkowski also figures several *Spéculums employés du temps d'A. Paré* (*loc. cit.,* figs. 29-32, p. 15), which, as will be explained, seem transitional between the speculum matricis and Weiss' three-bladed urethral dilator in mechanism.[1]

We may now consider the peculiarities of some similar instruments in the Wellcome Museum.

Among the instruments of this class in the Wellcome Museum, arranged as belonging to the sixteenth century, there is a "vaginal speculum engraved with fenestrated blades described and figured by Gersdorff, 1521." [2] It is not identical with that writer's instrument (fig. 3) represented in his "Feldtbüch," 1526, where the blades are solid. There is a bearing for the male screw on the horizontal bar between the lower ends of the lateral bars as in fig. 3, but the vertical limb of the cross-bar (continued, as in all these specula, into the middle blade above) terminates below in a straight rod which perforates the horizontal bar immediately under the bearing for the male screw. The most striking feature in this early Gersdorff's speculum is the position of the male screw which, as in another instrument in this museum is described as a French late sixteenth century speculum, runs along the under side, and not on the upper surface of the vertical limb of the cross-bar. This assimilates both instruments to their ancient prototype, the three-bladed Pompeian speculum, but as old mechanical details abandoned by later designers may be re-introduced in yet more modern times, it cannot be proved that the underside screw is conclusive evidence of the antiquity of any particular instrument.

There is also in the Wellcome Museum, a large speculum matricis of a similar type, except that the blades are concave internally and not fenestrated. In other samples there is a cross-bar uniting the lateral bars below as in the specula of the Rueff type, perforated for the male screw. In several others the lateral blades run below into a stout hoop or ring of metal, bearing the female screw; in others the hoop is cut so as to be four-sided. This

1. This type of instrument was more directly developed from Scultetus' pattern. "Armamentarium Chirurgici," 1672, Pl. xvii, fig. iv.

2. Mr. Thompson, the Curator, recently procured this speculum from South Germany.

ring or hoop is certainly a late contrivance, it makes the speculum firm and handy. In one of these "ring-type" specula, as they may be conveniently termed, the blades are prismatic, though the ridge is very blunt. Excluding the Pompeian model, *this is the sole speculum with prismatic blades in the Wellcome Museum.* In one highly complicated instrument the middle blade is worked by a kind of lever which stands out awkwardly below the middle blade. Another "speculum" is guitar or warming-pan shaped, the side bars, absolutely straight, running together for about five inches. At the lower end the male screw passes through a bearing perforated by a female screw and revolves above in another bearing, which receives its head. There is no middle bearing with a female screw, as in the Loan Collection sample. The lateral bars which bear the side blades form together a very wide oval when the blades are closed. The winch handle is very big in this clumsy looking speculum.

There is one speculum matricis in the Wellcome Museum, marked "Vaginal Speculum: French, Late XVI[1] Century," on which I must dwell on account of its strong resemblance to the sample, Fig. 1, in the College Museum. In both (1) the two lateral bars unite in a single joint below, and by their form give to the instrument a pear-shaped outline; (2) the male screw and the three bearings connected with it are very similar, the bar of steel, ending above in the middle blade, being of the same form.[2] The Wellcome Museum speculum *differs* from Fig. 1 in that (1) the blades are flat on the inner side, not prismatic. (2) The lateral bars are united below by a thumbscrew, not a single joint, so that the bars could be detached and cleaned when desired. (3) The male screw runs along the under surface of the instrument, and not on the same side as the blades. In this respect it resembles the Pompeian speculum (Fig. 2) and the earlier type described by Gersdorff, distinguished from his later type (Fig. 3) by its fenestrated blades. Yet in its lightness and its pear-shaped outline it approaches Mauriceau's *dilatoire à trois branches,* a seventeenth century development of the speculum matricis.

Already, however, this instrument was undergoing another and a very definite evolution when the speculum just described was designed. This evolution began, it appears under the auspices of no less an authority than Ambrose Paré.

1. The Curator of the Wellcome Museum, Mr. C. J. S. Thompson, has pointed out to me that the date "Late XV Century," on the original label (when the collection was opened for the International Medical Congress, 1913) was a misprint.

2. Both are worked by a winch, as in Gersdorff's and Rueff's specula, not by a thumb-screw.

### Paré's Speculum: Weiss' Three-Bladed Dilator.

In the Wellcome collection there are three models of Ambrose Paré's different specula. The first is the Vielle (hurdy-gurdy) pattern. The screw apparatus and bars are encased up to the blades between plates on their upper and lower surfaces. This protection of screws and bars reminds us of Greenhalgh's metrotome, where the idea was possibly taken from Coutouly's *utérostomatome* (Witkowski, "Arsenal," fig. 191, p. 45), whilst Coutouly very probably was inspired by Paré's example. The screw is worked by a winch. This fiddle pattern speculum is figured in Witkowski's "Arsenal" (Figs. 31, 32, p. 15). The second model of a speculum matricis "after Ambrose Paré" is almost identical with Rueff's (Fig. 4), the male screw passing through the horizontal bar and not through a bearing on that bar. It is worked by a winch. The third of these models of Paré's specula in the Wellcome collection is intermediate. The bearing on the horizontal bar for the male screw is a big metal nut and the screw is worked by a thumb-piece, not a winch. This type is also figured in the "Arsenal," figs. 29-32, p. 15.

These Paré's specula appear to be the prototypes of a yet later and far better remembered instrument, Weiss' three-bladed dilator. A vaginal speculum working by Weiss' mechanism was in general use in England eighty years ago, as we are assured in a passage from David Davis's "Principles and Practice of Obstetric Medicine" quoted above; its blades were fairly broad, convex externally and concave within, but Weiss' dilator, properly so-called, bore the narrow prong-like blades of the speculum matricis of Pompeii and of Gersdorff and Rueff. The smaller sizes are, I understand, still used for urethral dilatation by some surgeons, and a large-sized Weiss' dilator is figured in Messrs. Maw, Son and Thompson's Illustrated Catalogue for 1870 as a "Uterus Dilator."

### The Tubular Vaginal Speculum known to the Ancients.

Pierre Franco (1561) and Jacques Duval (1612) both testify that the use of the speculum matricis was advancing rapidly in their days. Yet whilst this three-bladed speculum matricis, long out of date, was known to the Romans, we must never forget that the tubular speculum, a gynæcological rather than obstetrical instrument, still in use, was probably an earlier invention. As we may learn from a visit to the Wellcome Museum, the Talmud explains how a woman may ascertain if blood issues from the womb by introducing a tube into the vagina and passing a rod with a cotton tampon along the tube, which was probably a bamboo internode on the stem end of a gourd.[1] Mar Samuel used a metal tube on

1. The development of the tubular speculum from a piece of bamboo is well demonstrated in the Wellcome Museum.

about A.D. 160. Such was the instrument perfected by Dr. Ferguson of Claremont Square, N., fated to outlive the tri-valve speculum matricis and also the rather numerous tri-valve and quadri-valve gynæcological specula of the nineteenth century, well represented in the Loan Collection in the Museum of the College of Surgeons. The tubular speculum remains with us, not utterly superseded by Marion Sims' excellent invention.

ILLUSTRATIONS.

Fig. 1. Speculum Matricis in the Loan Collection, Museum of the Royal College of Surgeons of England ($\frac{1}{2}$ nat. size).

Fig 2. Fac-simile of the Pompeian three-bladed speculum, Museum of the Royal College of Surgeons ($\frac{1}{2}$ nat. size).

Fig. 3. " Speculum—that is, to open the anus, or the birth-parts of women." From Gersdorff's " Feldtbüch der Wundartzney," 1526. Library, R.C.S.

Fig. 4. " Speculum Matricis." From Rueff, " De Conceptu et Generatione Hominis," 1554. Library, R.C.S.

Fig. 5. Title page to Gersdorff's " Feldtbüch der Wundartzney," 1524.

Fig. 6. Title page to Rueff's " De Conceptu et Generatione Hominis," Latin edition of 1554.

Fig. 7. Title page to " The Expert Midwife," English translation of Rueff's treatise. Edition of 1637.

Wellcome Library